

Vending Machines

ENERGY SAVING – FACT SHEET

Delamp Vending Machines

Typical Energy Use. Vending Machines can often be overlooked when considering your business' energy consumption, but they are in fact one of the largest energy consumers in the office environment. A typical refrigerated vending machine consumes on average 400 Watts, which at a rate of 8.6¢ per kWh, can translate into an annual operating cost of \$301.¹

Delamping Savings: One easy way to reduce your vending machine cost is to ask your vending machine company to de-lamp the advertising lights inside the machine. The lights and ballasts in a typical refrigerated vending machine use about 180 Watts. At a rate of 8.6¢ per kWh, delamping vending machines can save \$136 every year!

Delamping Issues: Some facility managers feel that removing the illumination of vending machines could reduce vending sales (and revenues) in areas where machines are remotely located. Other managers have made vending machine de-lamping a universal policy. When de-lamping, always educate vending machine users that de-lamped machines save energy. A decal can be conspicuously placed on the machine stating, "This Machine Is Operational. Lights Turned Off to Save Energy." Vending machine reps may discourage de-lamping, so do your homework and have your requests thought through.

Energy Saving Sensors

Consider the use of occupancy sensors and controllers that will reduce a vending machine's power requirements during long periods of non-use, such as overnight and weekends. This occupancy controller option should be considered when de-lamping a vending machine is not advisable (i.e., when a vending machine does not have a captive audience or when de-lamping resulted in reduced vending sales revenues.)

VendingMiser™, a USA Technologies product, saves between 30–50 percent of the annual electricity costs of a refrigerated vending machine, depending on the application and occupancy of the location.^{2,3,4} VendingMiser™ uses an infrared sensor to power down the vending machine after 15 minutes of vacancy, constantly monitoring the room's temperature while powered off to maintain the temperature of the

Successful Application of Vending Machine Sensors³

Wake County School System.

In 2000, the Wake County Schools System incorporated the use of VendingMiser™ power controllers in an exclusive vending machine contract with Pepsi Cola. Energy and cost savings from the vending machines exceeded expectations.

To inform users about the energy saving measures, every vending machine displays a decal explaining the use of the Vending-Miser™ controller and its beneficial savings. Most vending machines were also permanently delamped as part of the initiative, especially in highly visible locations.

No decrease in vending sales revenues have been experienced since the energy saving initiatives. Pepsi Cola worked with Researchers at NCSU to independently verify the energy saving achieved through the use of Vending-Miser™ power controllers. Pepsi is considering establishing a nationwide policy to incorporate occupancy sensor technology in all their vending machines.

Other testimonials can be found on the USA Technologies website.^{2,3}

product. Some new vending machines have built in occupancy sensors and power controllers. Energy saving sensors also reduce maintenance costs and increase the life of fluorescent lamps in the front panels.²

Applications and Suggestions

The VendingMiser™ technology has been employed in many governmental and school settings. The following suggestions are provided to ensure a successful application:

- Make sure everyone is aware of and educated about the installation and use of these units, including local drink vendors, building managers, and users. Even though Coke and Pepsi corporate management have approved the use of the VendingMiser™, local reps may not be informed.⁴
- Coordinate any moves of vending machines.

Calculate Your Potential Savings*

Typical Savings from Delamping your Vending Machines

_____ # vending machines x \$136 = \$ _____ / year

Typical Savings from Occupancy Controllers/VendingMiser

_____ # vending machines x \$301 x 0.45 = \$ _____ / year

Typical Savings from SnackMiser

_____ # snack vending machines x \$60 x 0.45 = \$ _____ / year

Payback Periods

Delamping Vending Machines:	Immediate
Occupancy/VendingMiser™ Controllers:	1.3—2.4 years
A VendingMiser™ controller costs	~\$180

*Savings based on NC average commercial electrical rate of \$0.086/kWh and 45 percent saving using VendingMiser.

The units use a photo sensor that is permanently mounted to the wall or ceiling over the vending machines.

- Be careful not to overload a circuit, where multiple vending machines are plugged into one circuit. Repeaters are available that stagger the starts of multiple machines on one circuit.
- Some facility managers suggest that VendingMiser™ not be used with machines that dispense dairy products.

Vending Contracts & New Options

Efforts should be made to incorporate the use of vending machine power sensors (built-in or add-on devices) in all future contracts with beverage and snack machine vendors. VendingMiser™ (add-on) products are now available on state contract for NC

agencies.

New refrigerated vending machines are making advances in energy efficiency, through improvements in compressors, insulation, lighting, use sensors, and programmable logic controllers. Request the highest energy efficient machines in new contracts. Request that existing machines be upgraded.

Other Applications

Organizations can also substantially reduce the energy costs of non-refrigerated vending machines by delamping or using occupancy controllers. A typical snack machine can draw almost 100 Watts, costing \$79 per year. See “Typical Savings” above.²

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References & Resources:

1. A Roadmap for Simultaneously Developing Supply and Demand for Energy Efficiency Beverage Vending Machines, Horowitz, et al. USDOE, EPA, ACEEE, and Natural Resources Defense. http://www.energy.ca.gov/appliances/2003rulemaking/documents/case_studies/CASE_Refrigerated_Vending.pdf
2. USA Technologies http://www.usatech.com/energy_management/index.php
3. Vending Miser usage testimonials http://www.usatech.com/energy_management/energy_testimonials.php
4. Tuff Climate Initiative: Vending Miser: Fact & Issues <http://sustainability.tufts.edu/?pid=39>

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